**AP Comp Sci ArrayList – ODD/EVEN Lab Value - 4**

**Lab Goal :** This lab was designed to review basic class creation and to introduce and demonstrate how to use an ArrayList.

**Lab Description :** Write a Number class that can be used to determine if a number is odd, even, or perfect. Then, use this Number class to determine how many numbers in the list are odd, even, and perfect.

**Files Needed ::**

**Number.java**

**NumberAnalyzer.java**

**NumberAnalyzerRunner.java**

**Sample Data :**

5 12 9 6 1 4 8 6

5 12 3 7 28 496 81 65 33 11

1 2 3 4 5 6 7 8 11 13 151 16 17 18 19 20

**Sample Output :**

[5, 12, 9, 6, 1, 4, 8, 6]

odd count = 3

even count = 5

perfect count = 2

[5, 12, 3, 7, 28, 496, 81, 65, 33, 11]

odd count = 7

even count = 3

perfect count = 2

[1, 2, 3, 4, 5, 6, 7, 8, 11, 13, 151, 16, 17, 18, 19, 20]

odd count = 9

even count = 7

perfect count = 1

***Challenge Yourself ::***

Check to see how many perfect numbers exist in the list.

6 is perfect because it is equal to the sum of its divisors.

The divisors of 6 are 1 2 3

1 + 2 + 3 = 6

***Odd / Even help***

ODD – any number when divided by 2 that has a remainder of 1

EVEN – any number when divided by 2 that has a remainder of 0

% - modulus – used to find the remainder of division